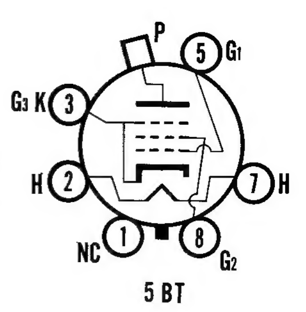


SYLVANIA TYPES 6EX6 21EX6



MECHANICAL DATA

Bulb	T-12
Base	Short Medium Shell Octal 5-Pin, B5-123
Outline	12-21
Top Cap	C1-1
Basing	5BT
Cathode	Coated Unipotential
Mounting Position	Vertical[1]

ELECTRICAL DATA

HEATER CHARACTERISTICS

	6EX6	21EX6
Heater Voltage	6.3	21.5 Volts
Heater Current	2.25	0.6 Amperes
Heater Warm-up Time[2]		11 Seconds
Heater-Cathode Voltage (Design Max. Values)		
Heater Negative with Respect to Cathode		
Total D C and Peak	200	200 Volts Max.
Heater Positive with Respect to Cathode		
D C	100	100 Volts Max.
Total D C and Peak	200	200 Volts Max.

DIRECT INTERELECTRODE CAPACITANCES (Unshielded)

Grid to Plate	1.1 $\mu\mu$f
Input: g1 to (h+k+g2+B.p)	22 $\mu\mu$f
Output: p to (h+k+g2+B.p)	8.5 $\mu\mu$f

RATINGS (Design Maximum Values)

Horizontal Deflection Amplifier[3]

D C Plate Supply Voltage (Boost + D C Power Supply)	770 Volts Max.
Peak Positive Plate Voltage (Abs. Max.)	7000 Volts
Peak Negative Plate Voltage (Abs. Max.)	1500 Volts
Grid No. 2 Voltage	195 Volts Max.
Peak Negative Grid No. 1 Voltage	220 Volts Max.
Plate Dissipation[4]	22 Watts Max.
Grid No. 2 Dissipation	3.5 Watts Max.
Average Cathode Current	220 Ma Max.
Peak Cathode Current	770 Ma Max.
Grid No. 1 Circuit Resistance	0.47 Megohm Max.
Bulb Temperature (At Hottest Point)	225 Degrees C Max.

AVERAGE CHARACTERISTICS

Plate Voltage	175 Volts
Grid No. 2 Voltage	175 Volts
Grid No. 1 Voltage	−30 Volts
Plate Current	67 Ma
Grid No. 2 Current	3.3 Ma
Transconductance	7700 μmhos
Amplification Factor[5]	4.2
Plate Resistance	8500 Ohms
EC1 for Ib = 1 ma (approx.)	−50 Volts
Ec1 with Eb = 5000 Volts for Ib = 1.0 ma	−101 Volts

Instantaneous Plate Knee Values

Eb = 60 V, Ec2 = 150 V and Ec1 = 0 V;
Ib = 460 Ma; and Ic2 = 45 Ma;
Eb = 60 V, Ec2 = 125 V and Ec1 = 0 V;
Ib = 360 Ma, and Ic2 = 30 Ma.

NOTES:

1. Horizontal operation is permitted if Pins 2 and 7 are in a horizontal plane.
2. Heater warm-up time is defined as the time required for the voltage across the heater to reach 80% of the rated heater voltage after applying four (4) times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to three (3) times the rated heater voltage divided by the rated heater current.

NOTES: (cont'd)

3. For operation in a 525 line, 30 frame system as described in "Standards of Good Engineering Practice for Television Broadcasting Stations; Federal Communications Commission." The duty cycle of the voltage pulse not to exceed 15% of a scanning cycle.
4. In stages operating with grid leak bias, an adequate cathode bias resistor or other suitable means is required to protect the tube in the absence of excitation.
5. Amplification factor with tube operating as a triode with 175 volts on the plate and Grid No. 2 and –30 volts on Grid No. 1.

APPLICATION

The Sylvania Types 6EX6 and 21EX6 are beam power amplifiers designed for service as horizontal deflection amplifiers in television receivers. Features of the tubes are extremely high perveance and high plate current at low plate and grid No. 2 voltage, plus a high ratio of plate to Grid No. 2 current.
The 21EX6 employs a 600 ma heater and controlled heater warm-up time for service in series string television receivers.